Gremlin INTEROFFICE MEMORANDUM

To: G. L. Hansen From: S. J. Fay Date: June 30, 1980

cc:

Subject: GREMLIN/SEGA CONFERENCE REPORT

Following is a list of Agreements and recommendations, as requested by Mr. Rosen, to summarize the joint Tokyo Conference.

A. COMMUNICATIONS - TOKYO, SAN DIEGO, CENTURY CITY

1. Gremlin should review and use standard SEGA R & D schedule report form. If slight modifications are required to conform to Gremlin functional management, they must be agreed upon by both companies prior to implementation. This task could be accomplished by Aug. 4th thru Mr. Hansen and Mr. Masa-son with final approval by Mr. Rosen.

2. Production Engineering Planning and Schedule report form is nearly identical to above mentioned R & D form and can follow the same procedure.

3. Gremlin should adopt the basic conversion plan for games as used by SEGA/Tokyo Production Engineering Department. Accurate information on conversions is essential to any customer support effort. Note: Exact knowledge of configuration of products coming to Gremlin for conversion is required to assure timely completion in Production.

4. A guideline for direct inter-company communication between counterparts should be developed by the companies executive staffs to speed necessary information and by-pass the present chain of command delivery. This system could be controlled by requiring Department Manager authorization prior to transmission of information.

5. The companies agree to provide each other complete Engineering document packages for all products and sub-assemblies destined for export and import into the respective two countries, i.e.: Sega to Gremlin and Gremlin to Sega.

6. The companies agree that inter-company training programs are essential to more efficient operations and the consolidation of company goals. To this end, it is recommended that a team from Sega/Tokyo come to Gremlin in late September, of 1980, for indoctrination into the new hardware system. Coupled with this pre-AMOA session, an in depth presentation of Gremlin methods and procedures can be given to those individuals participating in this first conference. Perhaps at this time a formal material numbering system can be agreed upon.

B. DESIGN - SEGA R & D and PRODUCTION ENGR. AND GREMLIN ENGINEERING

1. It is recommended that specifications be developed between the two companies which will ensure uniform electronic sub-assemblies capable of use by either company. These specs should apply to voltage levels required and Data I/O. The G-80 electronic system is the first step to inter-company uniformity. This design goal will be expanded to coin-mechanisms, game graphics and all support hardware. While total uniformity appears impractical at this time, it is feasible to accomplish uniformity to a degree of 40 - 60 percent of dollar value per game by Spring of 1981. Close communication between the two R & D Departments will be necessary. This subject will be discussed in greater depth in a later report (possibly July 31, 1980) pending evaluation of the first conference and its accomplishments.

2. It is recommended that a manual of standard descriptions be adopted for all assemblies, sub-assemblies, purchased parts or standard industry components. This task involves agreeing on a common language base used to derive descriptions on Engineering drawings. i,e, Gremlin-Sound board, Sega-Oscillator. It is felt that a standard for descriptions is the first step toward documentation uniformity and formation of compatible part numbering concepts. A standard parts catalog would be organized by part type, i.e. resistors, inductors, brackets, PCB's, etc.

3. Gremlin will adopt the metric system for engineering documents. This change will be phased into the development of product over a period of approximately six months to be completed by December 1, 1980. This change includes the use of metric fasteners and hardware.

4. It is recommended that an Engineering investigation be conducted to determine the worst case of electrical regulations stipulated by MITI of Japan, FCC of the U.S. and the ADE of Germany. Conducted and radiated EMI should pass the worst case to assure both companies of world wide compliance. All radiation testing data compiled on either company must be made immediately available to both companies as there are established final dates for compliance, i.e. FCC - Jan. 31, 1981. Furthermore, Gremlin will attempt to comply with all applicable MITI hardware requirements.

5. Gremlin will attempt to incorporate SEGA/Tokyo wire standards and conform to SEGA's color coding system. MITI accepted wire is designated as U/L-1 or FR-1 from the U.S.A., F- from Japan.

6. A study should be made of accepted international symbols for events and activities. This task's purpose is to discover feasibility of eliminating language designators for controls, coin mechs, and simple instructions. Both companies have agreed to secure the standard and submit a report on use in the games industry. If no standard is acceptable, Gremlin/Sega may develope one.

B. DESIGN - (Continued)

7. Up to date department organization charts for each company to be made available to the sister company so as to maintain knowledge of company counterparts.

8. The companies will exchange Engineering documentation in similiar "book" folder form. Gremlin to possibly change parts list format for ease of reference in book form.

9. Gremlin to establish documentation standards simulating Sega/Tokyo format when possible.

10. Sega/Tokyo to document in english to greatest degree possible for Gremlin bound material.

11. Investigate use of identical micro-film systems for document control and ease of drawing exchanges.

C. INVENTORY, COST, AND PRODUCTION CONTROL - GREMLIN & SEGA

1. SEGA to study current Gremlin computer based (real time) accounting and control system.

2. Gremlin to study feasibility of incorporating SEGA generated part numbers for hardware. Study to include other low value components for mutual part number usage. Gremlin to include (number) hardware and wire on future bills of material.

3. Study to be conducted in both the U.S. and Japan on most efficient assembly, sub-assembly and component part numbering system. System must be designed to handle future designs with little difficulty. The scope of this system must be required from all operating company departments as to format and ease of computer generated reports. The system, by previous comments, must be by type classification using numeric designation and consequative part number issue. A more detailed, formal recommendation will follow this report as it is my responsibility to study this matter at Gremlin while Mr. Furuya will do likewise at Sega/Tokyo. A single shared part number system is impractical at this time from both a cost and control point of view. However, with Sega/Tokyo going to real time a cross reference between the two numeric systems will allow rapid, accurate comparison of inventories, aiding in Production Engineering and Design, Purchasing, Production Control, Customer Service and Accounting. The beauty of the system is that all departments will operate with exactly the same data.

SUMMARY

A great deal of good will, knowledge, and food for thought has been generated by the Gremlin/Sega summit of June 1980. Co-operation seemed to be the order of the day with information freely exchanged and discussion replacing argument. Most of the problems discussed exist at both companies. I feel the individuals involved demonstrated their respective expertises openly and are qualified to solve the established problem areas. There are two major recommendations I would make concerning efficiency at both Gremlin and Sega. At Gremlin, a greater emphasis must be placed on preparing developed games for Production. This can be accomplished by a commitment to Production Engineering as part of the overall design function. At Sega, it appears that a strong central leader could accomplish a unity that is not evident at this time.

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